

producing a phase difference in a second signal with respect to a phase of a first signal which is input to said signal line driving circuit or to said scanning line driving circuit, wherein each of said first signal and said second signal is a clock signal.

34. A method according to claim 33, wherein each of said first signal and said second signal is a clock signal.

29
31 35. A method according to claim 33, wherein said first signal has a different rise time period (tr) and a different signal fall time period (tf) from said second signal.

36. A method according to claim 33, wherein a signal rise time period (tr) or a signal fall time period (tf) is equal to or shorter than one half of a signal holding time period (tc).

a3 added
29
32 37. A method according to claim 33, wherein said circuit for producing said phase difference in said second signal produces a phase difference corresponding to at least a signal rise time period (tr) of said first signal or a signal fall time period (tf) of said first signal.

29
33 38. A method according to claim 33, wherein said image display device is a projection type display apparatus including a transmission type liquid crystal panel and a light source for projection.--

REMARKS

Applicant wishes to thank the Examiner for the very thorough consideration given the present application. The Office Action of **November 21, 2000** has been received and its contents carefully noted. Filed concurrently herewith is a *Request for a One (1) Month Extension of Time* that extends the shortened statutory period for response to **March 21, 2001**. Accordingly, Applicant respectfully submits that this response is timely filed.

Claims 1-7 were pending in the present application prior to the aforementioned amendment. By the above actions, claim 2 has been canceled, claims 1 and 6 have been amended and new claims 8-38 have been added to recite additional protection to which Applicant is

already entitled. Accordingly, claims 1 and 3-38 are currently pending in the present application and, for the reasons set forth below, are believed to be in condition for allowance.

The Office Action rejects claims 1-7 under 35 U.S.C. §103(a) as being unpatentable over *Aoki* (U.S. Patent 6,011,533). Applicant respectfully traverses this ground for rejection and reconsideration of the pending claims is respectfully requested for the reasons solicited below.

The claimed invention is directed to an image display device and a method of driving an image display device. More particularly, the claimed invention is directed to such an apparatus and method including a liquid crystal panel; a scanning line driving circuit for driving scanning lines of the liquid crystal panel; a signal line driving circuit for driving signal lines of the liquid crystal panel; a control circuit for controlling driving the liquid crystal panel; and a circuit for producing a phase difference in a second signal with respect to a phase of a first signal which is input to the signal line driving circuit or to the scanning line driving circuit, wherein said first signal has a reversed phase relation with said second signal.

As the Examiner well knows, three criteria must be met to establish a *prima facie* case of obviousness. *M.P.E.P.* §2143. First, there must be some teaching, suggestion, or motivation to combine or modify the teachings of the prior art to produce the claimed invention, found either in the references themselves or in the knowledge generally available to a skilled artisan. *In re Fine*, 837 F.2d 1071, 5 USPQ.2d 1596 (Fed. Cir. 1988). Second, there must be a reasonable expectation of success. *In re Rhinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976). Third, the prior art must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

The Office Action states that *Aoki* discloses a liquid crystal display panel, a scanning line driving circuit (102) and a signal line driving circuit (110a, 110b) for driving signal lines of the liquid display panel. The express language of *Aoki* (Col. 8, lines 54-57) clearly indicates, however, that the scan-side drive circuit 102 drives a plurality of scan signal lines (110a, 110b). Therefore, the interpretation taken in the Office Action that the plurality of signal lines (110a, 110b) reads on the signal line driving circuit is in direct conflict with the express teaching of *Aoki*. Accordingly, *Aoki* fails to expressly teach or implicitly suggest a signal line driving circuit for driving signal lines of the liquid crystal panel, as presently set forth at least in independent claim 1 of the invention. And while the Office Action states that *Aoki* discloses a circuit (32) for producing a phase difference in a first signal and a second signal, there is no such disclosure

of a circuit for producing a phase difference in a second signal with respect to a phase of a first signal which is input to the signal line driving circuit or to the scanning line driving circuit, as presently set forth at least in independent claim 1 of the invention. In fact Fig. 1 of *Aoki* clearly illustrates that the phase-expansion circuit (32) inputs phase-expanded signals directly to the display panel (Col. 7, lines 46-59; col. 9, lines 11-50). Since *Aoki* fails to expressly teach or implicitly suggest all the claim limitations of the present invention, reconsideration of the pending claims and withdrawal of the rejection are solicited.

Furthermore, it is respectfully contended that the claimed invention sets forth unobvious advantageous features that are not disclosed or suggested in the prior art. Because the signal rise time period (t_r) and the signal fall time period (t_f) of the actual signal differ slightly from one another, when inputting a first clock signal and a second clock signal of high frequency which have no phase difference to the shift register circuit, the clock signals are not canceled out so that small noises are superimposed on each other to thereby produce a large amplitude noise. Such noise is undesirable since it exerts unwanted influence on the video signal when displaying an image on the screen so that the level of electromagnetic radiation is varied, and thus, makes it difficult to control to a level within electromagnetic compatibility (EMC) regulations.

In view of the aforementioned prior art disadvantages, Applicant has provided a circuit for producing a phase difference in a second signal with respect to a phase of a first signal which is input to said signal line driving circuit or to said scanning line driving circuit (as presently recited at least in independent claim 1 of the present invention). Such a feature is advantageous since the magnitude of the noise in a drive circuit is reduced to a level that does not exert influence on the display. Additionally, such a feature provides a circuit configuration in which electromagnetic radiation can be readily controlled within a level specified by EMC regulations. Applicant respectfully submits that these unobvious advantageous features are not recognized by *Aoki*.

Since the proposed *Aoki* modification fails to teach, disclose or reasonably suggest each and every feature of the claimed invention, and also fails to recognize the unobvious advantageous feature recited therein, it is respectfully submitted that the prior art fails to render the claimed invention obvious. Accordingly, Applicant respectfully requests that the §103(a) rejection of the pending claims be reconsidered and withdrawn in view thereof.

Accordingly, Applicant respectfully submits that claims 1 and 3-38 are in proper condition

for allowance and consideration and withdrawal of the pending rejections are requested. If the Examiner believes further discussions with applicant's representative would be beneficial in this case, he is invited to contact the undersigned.

Respectfully submitted,



Eric J. Robinson
Registration No. 38,285
NIXON PEABODY LLP
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
(703) 790-9110

EJR/TAV/wks

MARKED-UP COPY OF AMENDED CLAIMS

1. (Amended) An image display device comprising:
 - a liquid crystal panel having a switching element for every pixel electrode;
 - a scanning line driving circuit for driving scanning lines of said liquid crystal panel;
 - a signal line driving circuit for driving signal lines of said liquid crystal panel;
 - a control circuit for controlling driving said liquid crystal panel;
 - a video signal processing circuit; and
 - a [producing] circuit for producing a phase difference in a second signal with respect to a phase of a first signal which is [inputted] input to said signal line driving circuit or to said scanning line driving circuit,

wherein said first signal has a reversed phase relation with said second signal.

6. (Amended) A device according to claim 1, wherein said [producing] circuit for producing [the] said phase difference in said second signal produces [a phase difference with respect to the phase of said first signal, said] a phase difference corresponding to at least [the] a signal rise time period (t_r) of said first signal or [the] a signal fall time period (t_f) of said first signal.